

Work Order ID 104683

July-12-13 2:27:40 PM

Item ID: 646.3513

Accept

\*104683\*

U/R

Page 1

Revision ID:

Item Name: STRUT

Start Date: 7/12/13 Start Qty: 20.00 \*20\*

Required Date: 7/24/13 Req'd Qty: 20.00 \*20\*

\*N900040100\*

Setup Start

\*NS1\*

Stop

\*NS2\*

Reference:

Approvals:

Process Plan: W

Date:

Tooling:

Date:

Run Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr								
646.3500	N/C (ECN) U/R	-CHG will to SS							
110		0.00							

\*110\*

Waterjet

FLOW CNC Waterjet

Memo

0.00

1-Cut 646.3500 plate 2.00"X 2.00" as per Dwg

Dwg Rev: N/C

Prog Rev: N/C

2-Deburr if necessary

120

QC2- Inspect parts off machine FAI/FAIB

0.00

\*120\*

QC

Quality Control

Memo

0.00

20 0 Ae  
13-07-13

20 0 Ae  
13-07-13

215

Work Order ID 104683

\*104683\*

Page 2

July-12-13 2:27:40 PM

Item ID: 646.3513

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\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Item Name: STRUT

Stop \*NS2\*

Start Date: 7/12/13 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 7/24/13 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130  <b>*130*</b> QC Quality Control	QC8- Inspect parts - second check  Memo	0.00  0.00	27	13-13		20			
140  <b>*140*</b> Small Fab Small Fab	Memo  1- Fabricate tube as per dwg	0.00  0.00				20	13-7-24		
150  <b>*150*</b> QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00	25	13-7-24		09	09		DAS

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Item ID: 646.3513

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Start

\*NS1\*

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Stop

\*NS2\*

Start Date: 7/12/13 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 7/24/13 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals: Process Plan:

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run

Start

\*NR1\*

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

\*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	316 ss rod Weld per dwg A/R Aluminum rod Batch: 112357	0.00							

\*160\*

Large Fab

Memo

0.00

20 22 13-7-24

Large Fab

Weld tube to plate as per dwg. DT9868  
Weld end were tube is punched.

170

QC9- Inspect visual per QSI004- Fusion Welds

0.00

20 20 13-7-24 (DAS) (09) 8-89

\*170\*

QC

Quality Control

180

QC5- Inspect part completeness to step on W/O

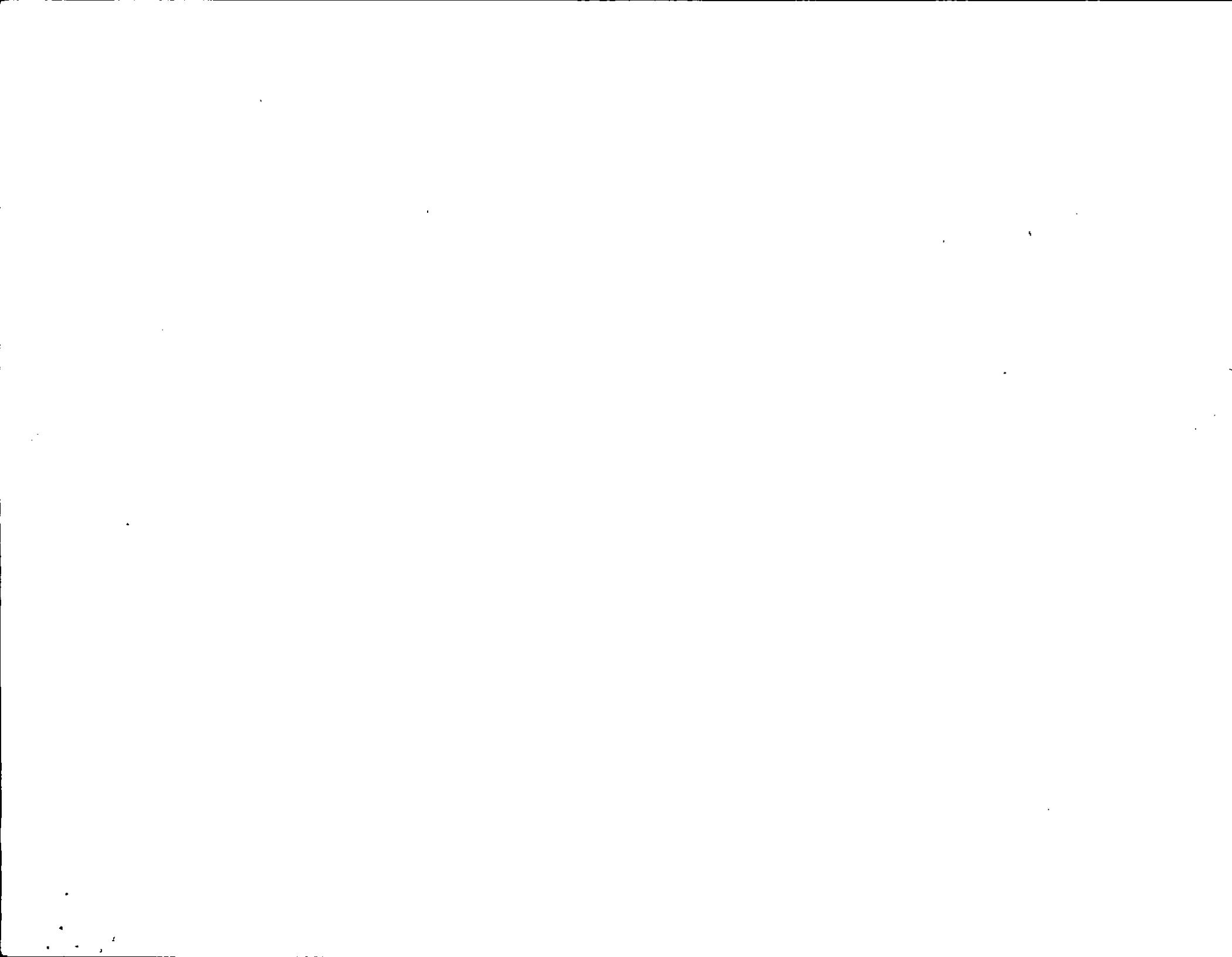
0.00

20 13-07-24 (DAS) (09) 8-89

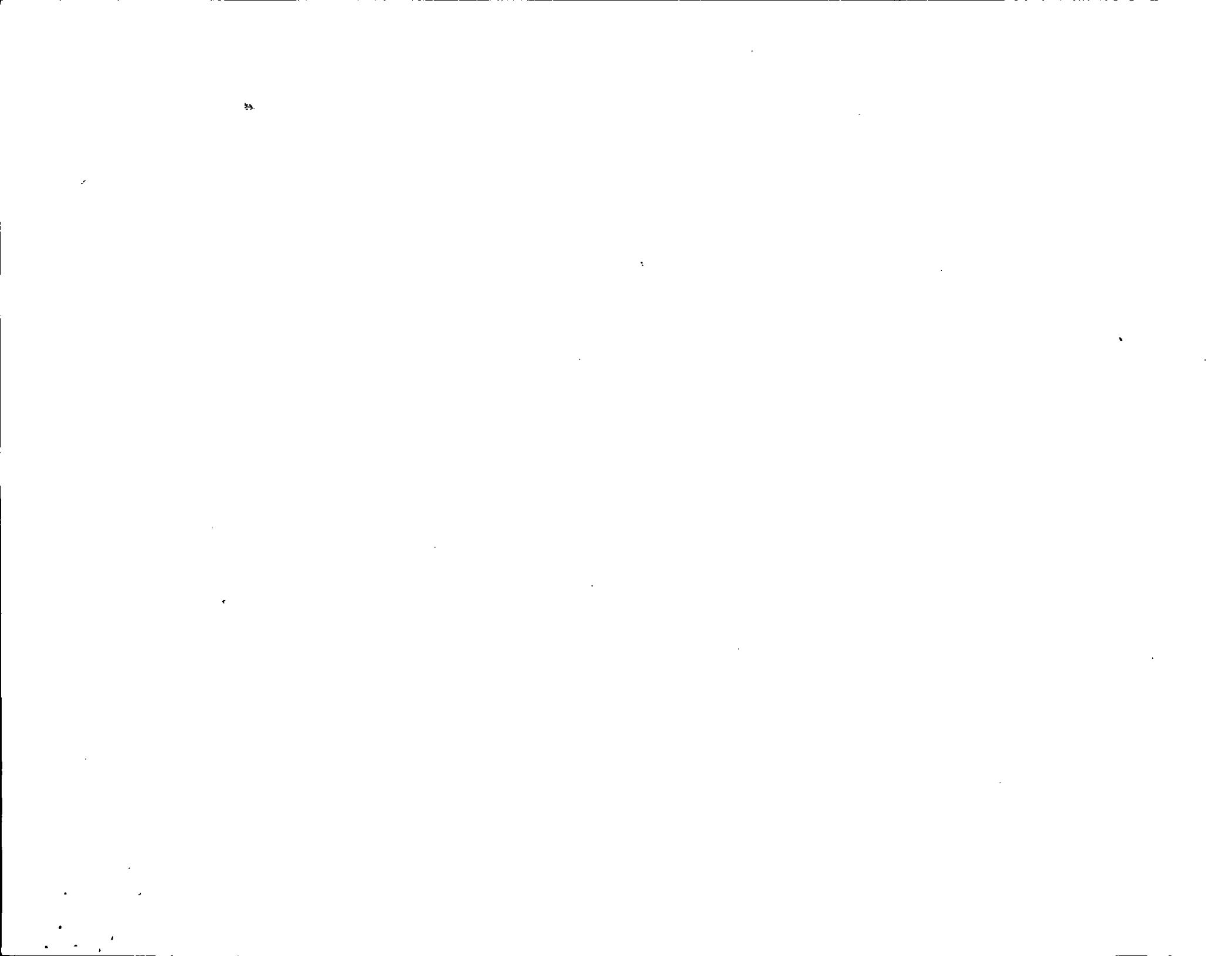
\*180\*

QC

Quality Control







Work Order ID 104683

\*104683\*

Page 5

July-12-13 2:27:40 PM

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\*N900040100\*

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\*NS1\*

Revision ID:

Item Name: STRUT

Stop

\*NS2\*

Start Date: 7/12/13 Start Qty: 20.00 \*20\*

Cust Item ID:

Required Date: 7/24/13 Req'd Qty: 20.00 \*20\*

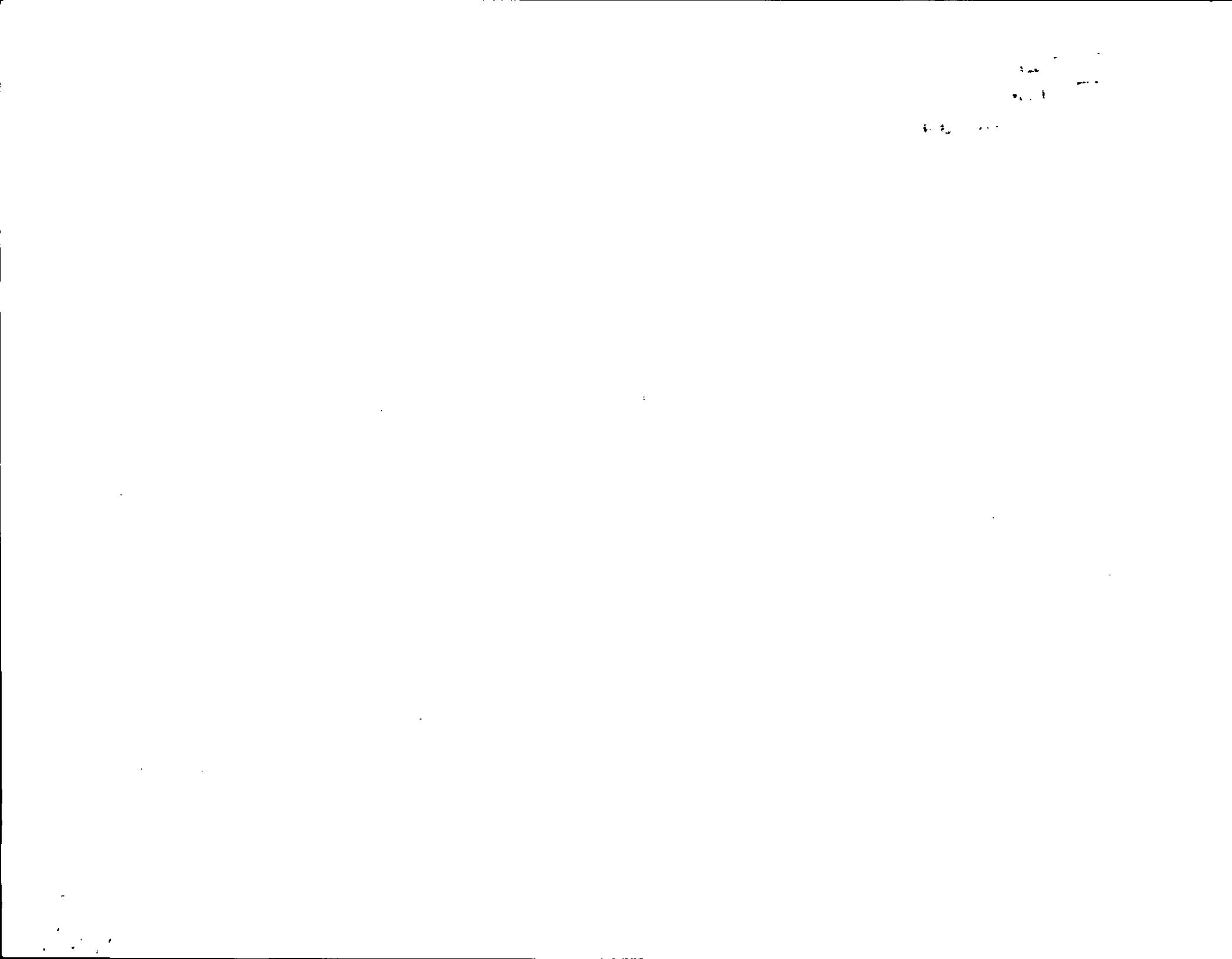
Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:		Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220  *220* SprayPaint	Memo Prime as per dwg (see note 3)	0.00							CD 13/07/24
Spray Painting	Batch: M125452								
230  *230* QC	QC4- Inspect Spray Paint 6 Memo	0.00	DAS 27 9-89					20	
Quality Control		0.00	13826						
240  *240* Packaging	Memo ST 523A	0.00							20x M. D. 13-08-27
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV***	0.00							

POSITIVE RECALL  
EFFECTIVE 3/01/12 AUTH  
RELEASED DATE 13/08/2012



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July-12-13 2:27:40 PM

\*104683\*

Page 6

Item ID: 646.3513

Accept

\*N900040100\*

Setup

Start

\*NS1\*

Revision ID:

Stop

\*NS2\*

Item Name: STRUT

Start Date: 7/12/13 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 7/24/13 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

250

QC21- Final Inspection - Work Order Release

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

\*250\*

QC

Quality Control

Memo

0.00

0.00

13/8/2013

AB-08-28



# Picklist Print

July-12-13 2:27:39 PM

Page 1

Work Order ID: 104683

Parent Item: 646.3513

Start Date: 7/12/13

Required Date: 7/24/13

Parent Item Name: STRUT

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP REV:A 12.10.19 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S12GA 304/316 .100" Sheet		Purchased	No				sf	79.4000		0.5894737		Ae 13-07-13	
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>		<u>113077</u>	→ 0.59	
				MAT019			79.4						
					113062		79.4						
M304TR0.500W.049 304 RD Tube .500 x .049W		Purchased	No				f	210.4197		21.052632		RC 13-7-23	
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				GA			43.66						
				120633			43.66						
				MAT017			166.759716						
				119087			0.000016						
				123449			86.7597						
				<u>125513</u>			80					201	



## David Duval

---

**From:** Pablo Bravo  
**Sent:** Wednesday, April 24, 2013 2:23 PM  
**To:** Jean-Luc Menard  
**Cc:** David Duval; Linda Lacelle  
**Subject:** RE: 646.3510/3511/3512/3513 STRUT ASSY

JL,  
This should be okay.

Pablo

---

**From:** Jean-Luc Menard  
**Sent:** Wednesday, April 24, 2013 9:15 AM  
**To:** Pablo Bravo  
**Cc:** David Duval; Linda Lacelle  
**Subject:** Fwd: 646.3510/3511/3512/3513 STRUT ASSY

Any news on this?

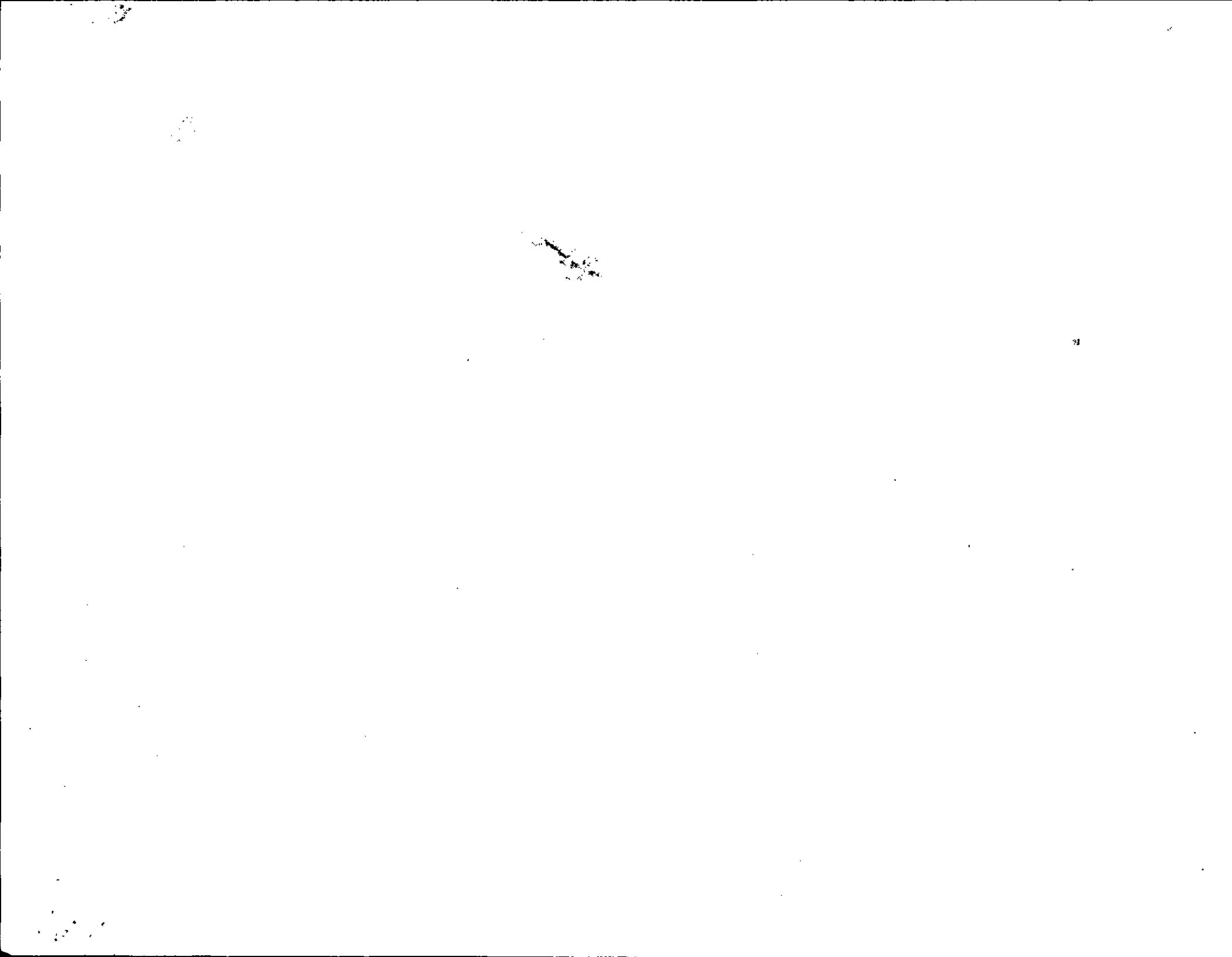
Sent from my iPhone

Begin forwarded message:

**From:** Jean-Luc Menard <[jmenard@dartaero.com](mailto:jmenard@dartaero.com)>  
**Date:** 22 April, 2013 10:27:05 AM EDT  
**To:** Pablo Bravo <[pbravo@dartaero.com](mailto:pbravo@dartaero.com)>  
**Cc:** David Duval <[dduval@dartaero.com](mailto:dduval@dartaero.com)>; Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)>  
**Subject:** 646.3510/3511/3512/3513 STRUT ASSY

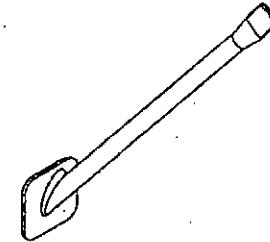
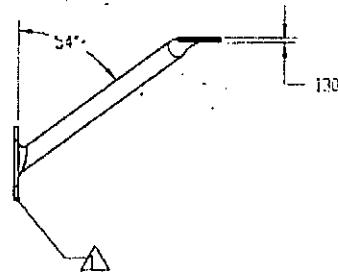
Hi Pablo,  
We have started manufacturing the struts and have run into some problems with cracking when  
punching/bending the end of the struts.  
Would going to 304 ss tubing with .049" wall be an acceptable deviation?  
This would include changing the bottom plate that gets welded on also to SS.  
Let me know asap so I can attach to the w/o and if acceptable I will issue a ECR.

THX  
JL

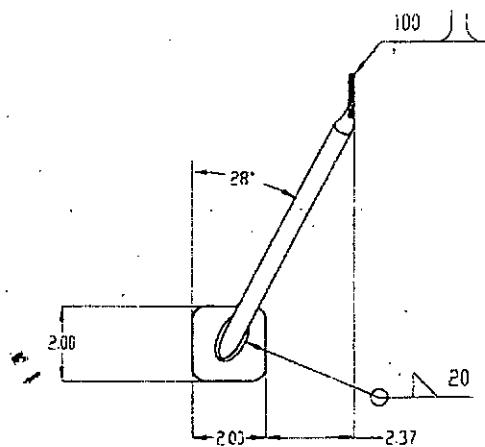
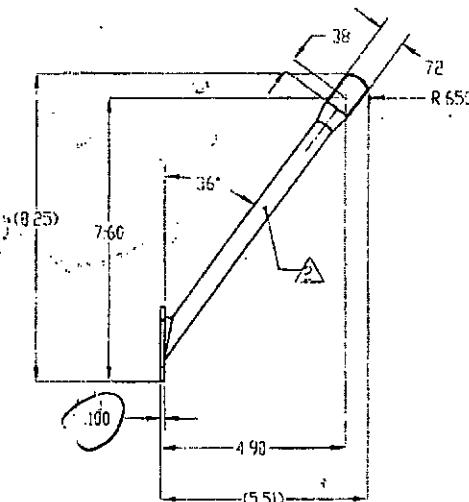


APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTIC.		NO.	02440	SHEET 1 OF 1	
	DWG NO. 646.3500 REV: NC		PREPARED BY	S. HUFF	DATE 06/08/09	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.
	DWG TITLE:		STRUCT			
	APPROVED BY:	ENGR <i>J. Barr</i>	MFG	QC	EFF:	CURRENT ORDER AND STOCK
REASON: REVISED GEOMETRY TO ACCOMMODATE NEW EXISTING AIRCRAFT PROVISIONS						
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE						

SHEET 2 IS



546.3512 SHOWN  
646 3512 OPPPOSITE



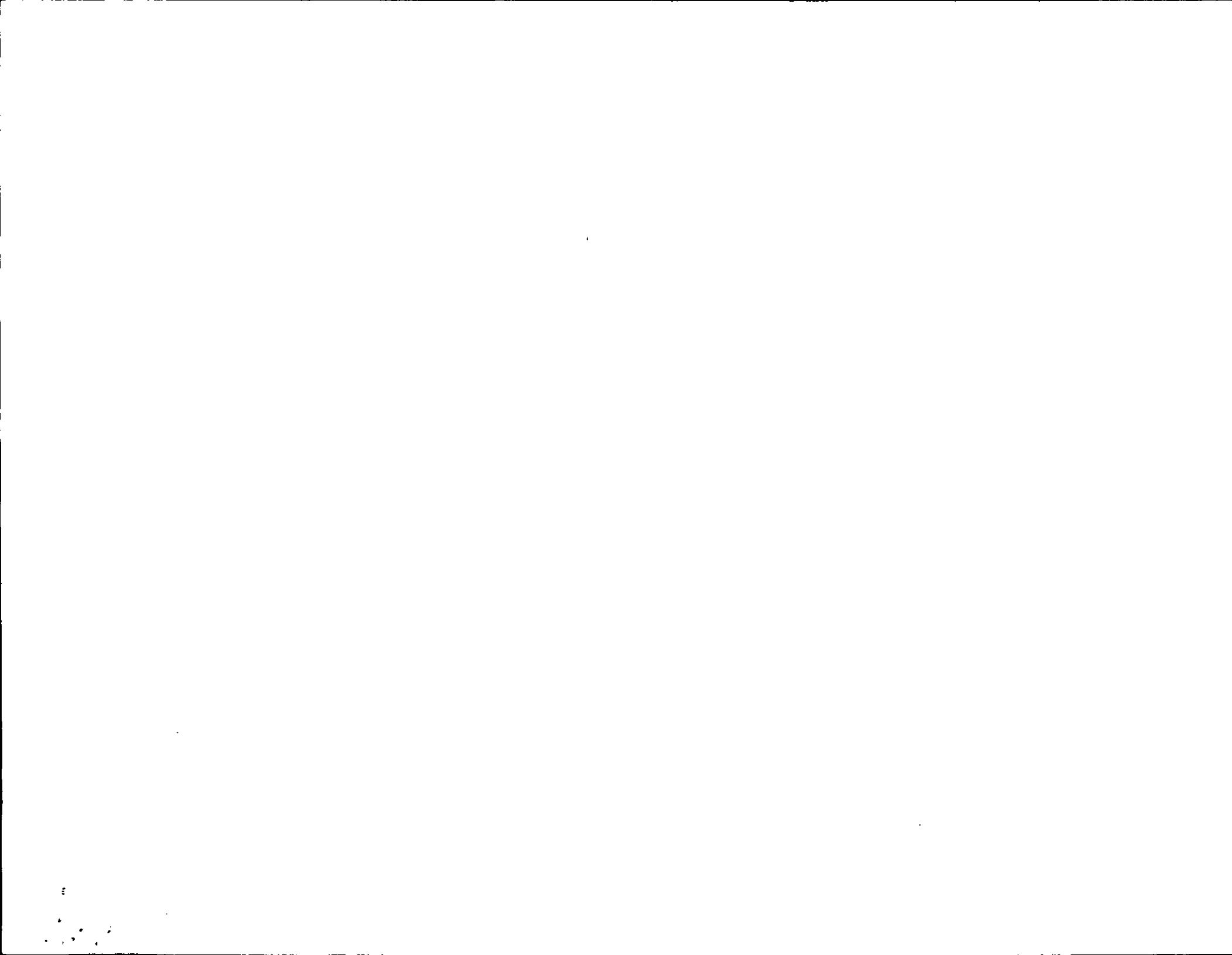
W.D. Jackson

**DOCUMENTS EFFECTED**

MDL  INSTALL INSTRUC  ICA  FMS  BOM  CHANGE CATEGORY  DER REVIEW REQUIRED  
 MAJOR  MINOR  YES  NO

4 CHANGE CATEGORY  
□ MAJOR  MINOR

DER REVIEW REQUIRED  
 YES  NO



100115

## NOTES:

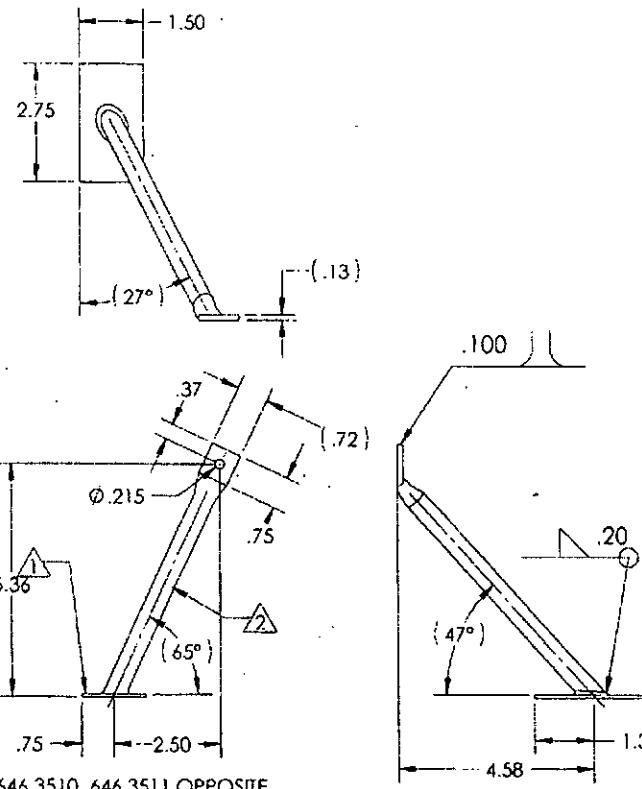
1. MATERIAL: 6061-T6 ALUMINUM IAW AMS-QQ-A-250/11;  
.062" THK.

2. MATERIAL: 6061-T6 ALUMINUM IAW AMS-WW-T-700/3  
.500" OD; .062" WALL THK

3. FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2  
COLOR BLACK;  
CARDINAL 4860-50 PRETREATMENT PRIMER  
PRIME IAW MIL-P-23377J TYPE I CLASS N

4. DEBURR AND BREAK ALL SHARP EDGES

5. WELDS IAW MIL-STD-2219.  
TIG WELD WITH FILLER ROD



646.3510 SHOWN  
646.3511 OPPOSITE

## UNINCORPORATED ECN(S)

02197, 02440,

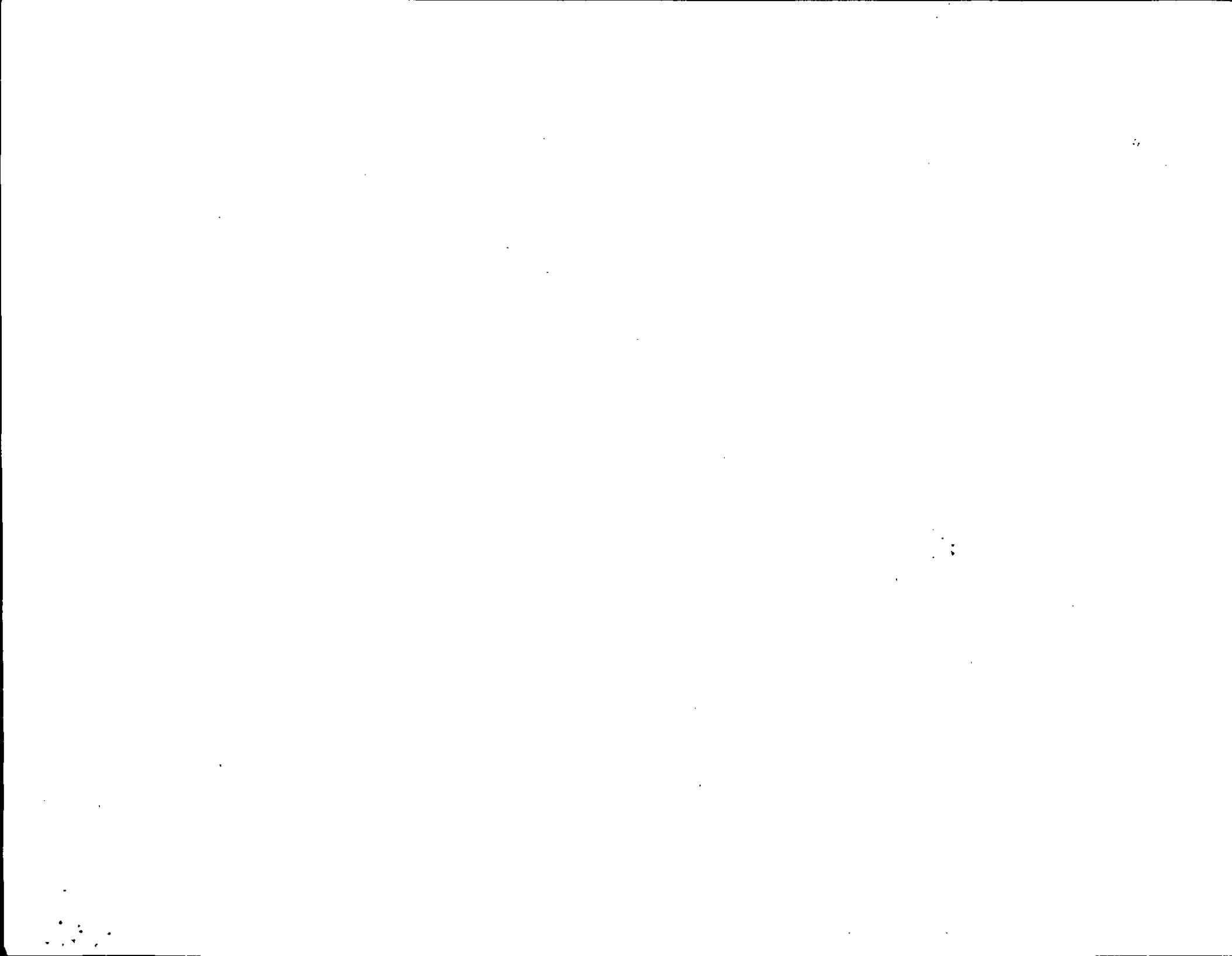
QTY	FIND #	PART #	DESCRIPTION	MATERIAL	SPEC.	PARTS LIST	
						646.3513	STRUT
		646.3512	STRUT	△△	△	646.3512	STRUT
		646.3511	STRUT	△△	△	646.3511	STRUT
		646.3510	STRUT	△△	△	646.3510	STRUT

646.3500

APICAL INDUSTRIES  
2600 E. WALL MURKIS DR.  
OCEANSIDE, CA. 92054-3512 (760)724-5300

STRUT

646.3500



DART AEROSPACE LTD	Work Order:	104683
Description: STRUT	Part Number:	64603500
Inspection Dwg: 64603500 Rev: NC (ECN) U/B		Page 1 of 1

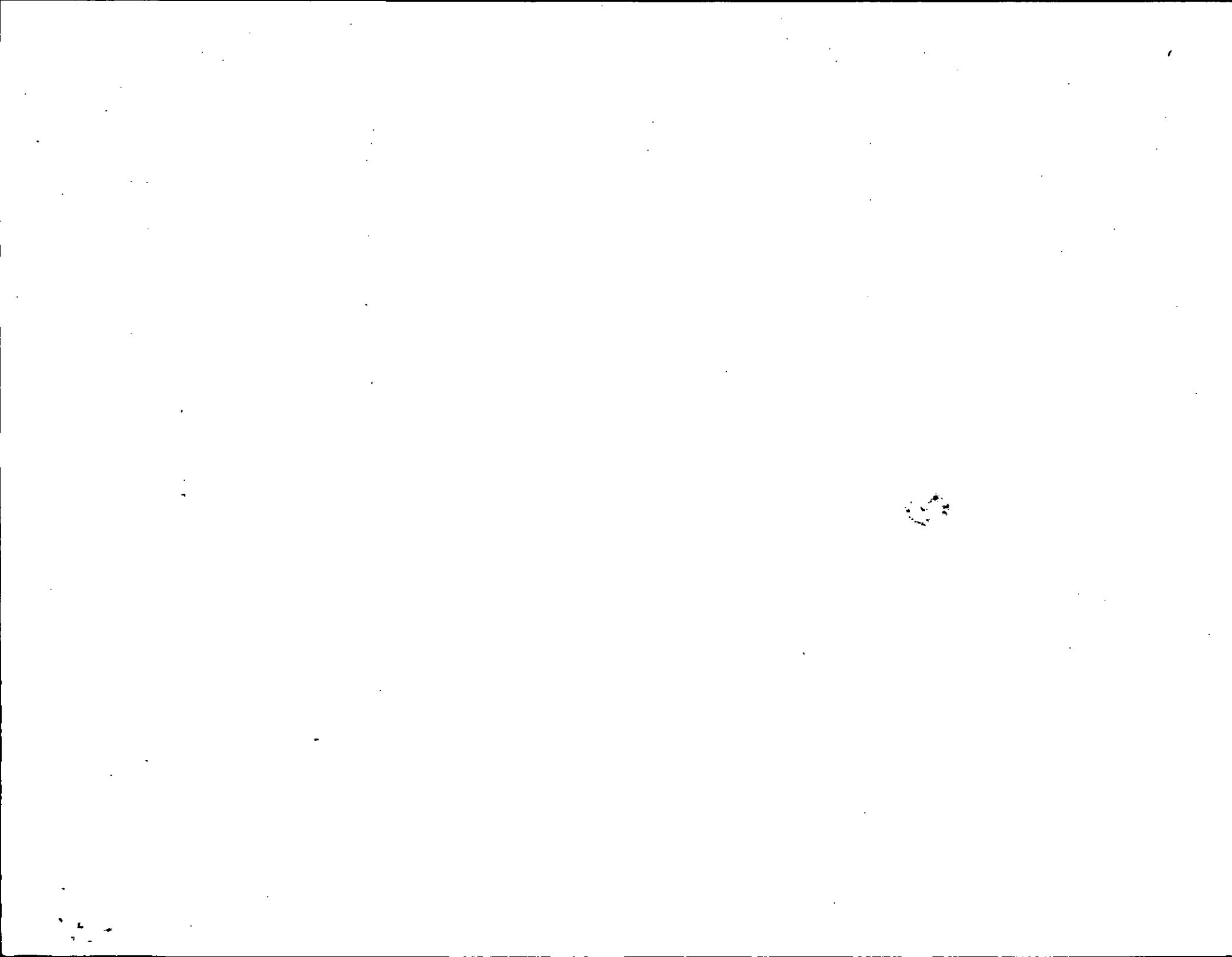
# FIRST ARTICLE INSPECTION CHECKLIST

104

Measured by:	<i>AK</i>	Audited by:	<i>BS</i>	Preliminary Approval:	
Date:	13.07.13	Date:	13.7.13		Date:

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

10.04.15





A.T.G. Industries Inc.  
731, rue Industrielle Rd.  
PLATING DEPARTMENT  
Rockland, On K4K 1T2  
Canada  
Ph: (613) 446-4544  
Fax: (613) 446-4556

### Pack List

Number: 62583

Date: 22-Aug-13

To

DART AEROSPACE LTD  
1270 ABERDEEN ST.  
HAWKESBURY, ON K6A 1K7  
Canada

Ship To

DART AEROSPACE LTD  
1270 ABERDEEN ST.  
HAWKESBURY, ON K6A 1K7  
Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms	Ship Via
Quantity	Description
1 lot	Part: ASST 20 PCS 646.3513 PRIME MIL-P-23377J TYPE I CLASS N  52 PCS 647.9413 HARD ANODIZE BLACK MIL-A-8625 TYPE III CLASS 2 PRIME MIL-P-23377J TYPE I CLASS N Job: 20130532 PO: 20678
	<p>Rev:</p> <p>Line:</p> <p>Certificate of Conformance</p> <p>A.T.G. Industries certifies that all items in this shipment are in conformance with all requirements, specifications and drawings referenced in the purchase order.</p> <p>ISO 9001 : 2008 REGISTERED ATG SALES-2010 TERMS APPLY</p> <p>DATE: <u>22/8/13</u></p> <p>CERTIFIED SIGNATURE: <u>M</u></p> <p>RECEIVER SIGNATURE: _____</p>





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO20678**

Purchase Order Date 7/24/2013  
PO Print Date 8/23/2013

Page Number 1 of 4

Order From :  
A.T.G. INDUSTRIES INC.  
731 INDUSTRIELLE ROAD  
ROCKLAND, ON K4K 1T2  
CANADA

VC-ATG001

Ship To : DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

Contact Name  
Vendor Phone 613-446-4544  
  
Ship To Contact  
Ship To Phone  
Ship Via: Yours ppd  
Ship Acct:

Buyer Brigitte Golden  
Customer POID  
Customer Tax # 10127-2607  
Terms Net 30  
Currency CAD  
FOB Destination-Collect

*REVISED*

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Promise Date	Req Qty/ Unit of Measure	PO Unit Price	Extended Pri	
<i>Line Comments</i>									
<i>Delivery Comments</i>									
4	104683	646.3513 Strut	8/2/2013 Yes		8/2/2013	20.00	\$16.34	\$326.	
<i>CARDINAL 4860-50 PRETREATMENT PRIMER IAW MIL-P-23377J TYPE 1 CLASS N B104683</i>									
<i>Sp 13-8-23</i>									
								<b>Line Total:</b> \$326.	
5	102933	646.3810 BRACKET	8/2/2013 Yes		8/2/2013	21.00	\$6.55	\$137.	
<i>Hard anodize IAW MIL A 8625 TYPE III CLASS 2 COLOR BLACK CARDINAL 4860-50 PRETREATMENT PRIMER IAW MIL-P-23377J TYPE 1 CLASS N</i>									
								<b>Line Total:</b> \$137.	
6	104680	646.3717 DOUBLER	8/2/2013 Yes		8/2/2013	6.00	\$8.48	\$50.	
<i>SAME AS ABOVE</i>									

**Note:**

